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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,960	04/13/2004	Pey-Yuan Lee	24061.187 (2003-1398)	3594
42717	7590	08/10/2005	EXAMINER	
HAYNES AND BOONE, LLP			HUYNH, ANDY	
901 MAIN STREET, SUITE 3100			ART UNIT	
DALLAS, TX 75202			PAPER NUMBER	
			2818	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/822,960	LEE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andy Huynh	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

In the Response to Restriction Requirement dated July 25, 2005, Applicant has elected with traverse Invention I (Claims 1-9) drawn to a method of manufacturing a microelectronic device is acknowledged. Accordingly, claims 10-22 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims 10-22.

The traversal is on the ground(s) that the reason is speculative. That is not found persuasive because

(a) The above two different classifications show the need for two entirely different fields of a search.

(b) The inventions are in different statutory classes which have different case law basis for examination.

(c) Non-restriction would mean that if one of the inventions were held to be unpatentable then the other would also be inherently held to be unpatentable. Therefore, restriction is proper since there are apparently two different inventive concepts in making the device and in the device itself.

The requirement is still deemed proper and is therefore made **FINAL**.

***Specification***

The disclosure is objected to because of the following informalities:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 U.S.C. § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1 and 3** are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (USP 6,525,318 hereinafter referred to as "Kim").

Regarding claim **1**, Kim discloses in Figs. 9-11 and the corresponding texts as set forth in column 6, line 20-column 7, line 60, a method of manufacturing/inspecting a microelectronic device, comprises:

performing a first inspection of a device feature/an integrated circuit substrate during an intermediate stage of manufacture (col. 6, lines 57-58);

cleaning the device feature/the integrated circuit substrate after the first inspection (col. 7, lines 27-31); and

performing a second inspection of the device feature after cleaning the device feature (col. 7, lines 32-38).

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Regarding claim 3, Kim discloses the first and second inspections performed by a single inspection tool.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (USP 6,525,318 hereinafter referred to as "Kim").

Kim discloses the claimed limitation except for the first inspection performed by a first inspection tool and the second inspection performed by a second inspection tool different than the first inspection tool. It would have been an obvious matter of design choice to use the first inspection performed by a first inspection tool and the second inspection performed by a second inspection tool different than the first inspection tool, since applicant has not disclosed that the first inspection performed by a first inspection tool and the second inspection performed by a second inspection tool different than the first inspection tool solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the first and second inspections performed by a single inspection tool.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (USP 6,525,318 hereinafter referred to as “Kim”) in view of Iwabuchi et al. (USP 6,512,227 hereinafter referred to as “Iwabuchi”).

Kim discloses all the claimed limitations except for at least one of the first and second inspections is performed by a scanning electron microscope (SEM). Iwabuchi teaches that as one of apparatuses for observing a sample with an electron beam, there is known a scanning electron microscope (SEM). The SEM is suitable for observing a by restricted field of vision at a high magnification (col. 1, lines 32-39). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use at least one of the first and second inspections is performed by a scanning electron microscope (SEM), as taught by Iwabuchi to incorporate into Kim’s method to arrive the claimed limitation since it was known in the art that the SEM is suitable for observing a by restricted field of vision at a high magnification.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (USP 6,525,318 hereinafter referred to as “Kim”) in view of Branco et al. (USP 6,841,008 hereinafter referred to as “Branco”).

Kim discloses all the claimed limitations except for the cleaning comprises exposing the device feature to an oxygen containing plasma. Branco teaches that plasma cleaning with oxygen as a source gas (also referred to “ashing”) can remove organic based materials. At the same time, an oxygen plasma etch can leave quartz surfaces essentially unaltered as set forth in

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column 4, line 64-column 5, line 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use oxygen plasma for cleaning or etching, as taught by Branco since it was known in the art that oxygen plasma can remove organic based materials, and can leave quartz surfaces essentially unaltered.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (USP 6,525,318 hereinafter referred to as "Kim'318") in view of Kim et al. (USP 6,355,516 hereinafter referred to as "Kim'516").

Kim'318 discloses all the claimed limitations except for the device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer. Kim'516 teaches in Fig. 1C that a device feature comprises a first conductive layer 12 located over a substrate 11, a buffer layer 13, 14, 15, 16 located over the first conductive layer, and a second conductive layer 17 located over the buffer layer (col. 2, line 40-col. 3, line 14). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer, as taught by Kim'516 in order to form a device feature as a capacitor.

***Allowable Subject Matter***

Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. The prior art of record, taken alone or in combination, fails to teach or suggest the method wherein the device feature is located in a production region of a wafer, the wafer further including a calibration region having a calibration feature located therein as recited in Claim 7.

***Conclusion***

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ah

Andy Huynh

08/06/05

Patent Examiner